

Notice of Allowability

Application No.

09/872,596

Examiner

Blanche Wong

Applicant(s)

TING ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to August 3, 2006.
2. ☒ The allowed claim(s) is/are 2,4-7,9-11,13,15-22,25,27-36 (renumbered 1,8,2-7,9-17,19,20,27,18,28 respectively).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>Aug'06</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David J. Thibodeau (Reg No. 31,671) on August 17-21,2006.

The application has been amended as follows:

1. (Cancelled)
2. (Currently Amended) A method implemented in a network file server contained in a data network for providing a trunk, comprising the steps of:
 - providing a trunk having a plurality of communications ports;
 - coupling the plurality of communications ports to a switch;
 - assigning ownership of the plurality of communications ports to a first virtual device;
 - setting a network address associated with the first virtual device to a first network address, the first network address assigned to a first communications port;
 - setting network addresses for the remaining plurality of communications ports to the first network address ~~associated with the first virtual device~~;
 - upon receiving a data packet from the data network by any of the communications ports in the trunk, forwarding the data packet to the first virtual device; and
 - allocating a plurality of device structures, ~~the~~ a device structure[[s]] allocated for each of the plurality of communications ports, each device structure including an owner field.

3. (Cancelled)

4. (Currently Amended) A method implemented in a network file server contained in a data network comprising the steps of:

- providing a trunk having a plurality of communications ports;

- coupling the plurality of communications ports to a switch;

- assigning ownership of the plurality of communications ports coupled to a first virtual device;

- setting a network address associated with the first virtual device to a first network address, the first network address assigned to a first communications port;

- setting network addresses for the remaining plurality of communications ports to the first network address ~~associated with the first virtual device~~;

- upon receiving a data packet from the data network by a communications port in the plurality of communications ports in the trunk, forwarding the data packet to the first virtual device; and

- allocating a plurality of device structures, ~~the~~ a device structure[[s]] allocated for each of the plurality of communications ports, each device structure including an owner field,

- wherein the step of assigning ownership further comprises the step of:

- storing a pointer to a virtual device structure allocated for the first virtual device in the owner field in each of the plurality of device structures ~~allocated for the plurality of communications ports~~, and

- wherein the step of forwarding further comprises the steps of:

- examining the contents of the owner field in the device structure allocated to the communications port that is receiving the data packet; and

- selecting the first virtual device pointed to by the pointer stored in the owner field.

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5. (Previously Presented) The method as claimed in Claim 2 further comprising the steps of:

receiving a data packet destined for the data network at the first virtual device; and

transmitting the data packet through one of the plurality of communications ports in the trunk.

6. (Previously Presented) The method as claimed in Claim 5 further comprising the step of:

selecting one of the plurality of communications ports for transmitting the data packet dependent on the result of an exclusive OR operation on a portion of a source network address and a destination network address.

7. (Original) The method as claimed in Claim 6 wherein the portion of the source network address and the destination network address are dependent on a number of communications ports in the trunk.

8. (Cancelled)

9. (Currently Amended) ~~A method implemented in a network file server contained in a data network for providing a trunk, comprising the steps of:~~

~~providing a trunk having a plurality of communications ports;~~

~~coupling the plurality of communications ports to a switch;~~

~~assigning ownership of the plurality of communications ports to a first virtual device;~~

~~setting a network address associated with the first virtual device to a first network address, the first network address assigned to a first communications port;~~

~~setting network addresses for the remaining plurality of communications ports to the network address associated with the first virtual device; and~~

~~upon receiving a data packet from the data network by any of the communications ports in the trunk, forwarding the data packet to the first virtual device,~~

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The method as claimed in Claim 2 wherein the first network address ~~associated with the first virtual device~~ is a data link layer address, and

wherein the data link layer address is an Ethernet address.

10. (Previously Presented) The method as claimed in Claim 9 wherein the data link layer address is an IEEE 802.3 address.

11. (Currently Amended) The method as claimed in Claim 10 further comprising the steps of:

assigning ownership of a second plurality of communications ports coupled to a second switch to a second virtual device;

assigning ownership of the first virtual device and the second virtual device to a third virtual device;

setting a failsafe network device address associated with a failsafe network device to the first network address ~~associated with the first virtual device~~;

~~setting network addresses assigned to the second plurality of communications ports to the failsafe network device address;~~

setting the first network address ~~assigned to the first virtual device~~ and a network address associated with ~~assigned to~~ the second virtual device to the failsafe network device address; and

upon receiving a data packet from the data network for the failsafe network device address by a communications port in the plurality of communications ports in the trunk, forwarding the data packet to the failsafe network device.

12. (Cancelled)

13. (Currently Amended) A network file server contained in a data network comprising:

a plurality of communications ports coupled to a switch;

a trunk configuration routine which creates a virtual device for the plurality of communications ports, sets a network address associated with the virtual device to a first network address assigned to a first communications port and sets network addresses for the remaining communications ports in the plurality of communications ports to the first network address ~~associated with the virtual device~~;

an owner routine, which selects the virtual device associated with the network address for a data packet received by any of the communications ports in the trunk; and

a device driver which allocates a device structure for each of the plurality of communications ports, each device structure including an owner field.

14. (Cancelled)

15. (Currently Amended) A network file server contained in a data network comprising:

a plurality of communications ports coupled to a switch;

a trunk configuration routine which creates a virtual device for the plurality of communications ports, sets a network address associated with the first virtual device to a first network address assigned to a first communications port, sets network addresses for the remaining communications ports in the plurality of communications ports to the first network address ~~associated with the first virtual device~~, and allocating a device structure for each of the plurality of communications ports; and

an owner routine which selects the virtual device associated with the network address associated with the first virtual device for a data packet received by any of the plurality of communications ports in the trunk,

wherein the trunk configuration routine allocates a device structure for the first virtual device and stores a pointer to the device structure allocated for the first virtual device in an owner field ~~in each of a plurality of~~ in the device

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structure[[s]] for each of the ~~allocated for the~~ plurality of communications ports,
and

wherein the owner routine examines the contents of the owner field in the device structure ~~allocated for each of the plurality of communications ports to a~~ communications port in the plurality of communications ports receiving a data packet and selects the first virtual device pointed to by the pointer stored in the owner field.

16. (Currently Amended) The network file server as claimed in Claim 15 further comprising:

a virtual device driver which selects one of the plurality of communications ports through which to transmit a data packet on the trunk.

17. (Previously Presented) The network file server as claimed in Claim 16 wherein the virtual device driver selects one of the plurality of communications ports dependent on the result of an exclusive OR operation on a portion of a source network address and a destination network address.

18. (Original) The network file server as claimed in Claim 17 wherein the portion of the source network address and the destination network address are dependent on a number of communications ports in the trunk.

19. (Currently Amended) The network file server as claimed in Claim 15 wherein the first network address ~~associated with the first virtual device~~ is a data link layer address.

20. (Currently Amended) The network file server as claimed in Claim [[16]] 19 wherein the data link layer address is an Ethernet address.

21. (Original) The network file server as claimed in Claim 20 wherein the data link layer address is an IEEE 802.3 address.

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22. (Previously Presented) The network file server as claimed in Claim 21 wherein the trunk configuration routine assigns ownership of a second plurality of communications ports coupled to a second switch to a second virtual device, and assigns ownership of the first virtual device and the second virtual device to a third virtual device.

23.-24.(Cancelled)

25. (Currently Amended) A network file server comprising:
a plurality of communications ports coupled to a switch;
means for providing a trunk, the trunk including the plurality of communications ports, by assigning ownership of the plurality of communications ports to a virtual device;
means for setting a network address associated with the virtual device to a first network address assigned to a first communications port, and for setting network addresses for the remaining plurality of communications ports to the first network address ~~associated with the virtual device~~;
means for forwarding a received data packet from a data network, the received data packet having been received by a communications port in the plurality of communications ports in the trunk, the received data packets being forwarded to the virtual device; and
means for allocating a plurality of device structures, ~~the~~ a device structure[[s]] allocated for each of the plurality of communications ports, each device structure including an owner field.

26. (Cancelled)

27. (Currently Amended) A network file server contained in a data network comprising:

a plurality of communications ports coupled to a switch;

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means for providing a trunk including the plurality of communications ports by assigning ownership of the plurality of communications ports to a first virtual device;

means for setting a network address associated with the first virtual device to a first network address, the first network address assigned to a first communications port;

means for setting network addresses for the remaining plurality of communications ports to the first network address;

means for forwarding a data packet received from the data network by a communications port in the plurality of communications ports in the trunk to the first virtual device; and

means for allocating a plurality of device structures, ~~the~~ a device structure[[s]] allocated for each of the plurality of communications ports, each device structure including an owner field,

wherein the trunk configuration routine further comprises:

means for storing a pointer to the plurality of [[a]] device structures,

and

wherein the means for forwarding further comprises:

means for examining the contents of the owner field in the device structure allocated to a communications port in the plurality of communications ports receiving a data packet; and

means for selecting the first virtual device pointed to by the pointer stored in the owner field ~~so-examined~~.

28. (Currently Amended) The network file server as claimed in Claim 27 further comprising:

means for receiving a data packet destined for the data network at the first virtual device; and[[,]]

means for transmitting the data packet through one of the plurality of communications ports in the trunk.

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29. (Previously Presented) The network file server as claimed in Claim 28 wherein the means for transmitting selects one of the plurality of communications ports dependent on the result of an exclusive OR operation on a portion of a source network address and a destination network address.

30. (Original) The network file server as claimed in Claim 29 wherein the portion of the source network address and the destination network address are dependent on a number of communications ports in the trunk.

31. (Currently Amended) The network file server as claimed in Claim 27 wherein the first network address ~~associated with the first virtual device~~ is a data link layer address.

32. (Previously Presented) The network file server as claimed in Claim 31 wherein the data link layer address is an Ethernet address.

33. (Previously Presented) The network file server as claimed in Claim 31 wherein the data link layer address is an IEEE 802.3 address.

34. (Currently Amended) The network file server as claimed in Claim 27 further comprising:

a second plurality of communications ports coupled to a second switch wherein the means for providing provides a second trunk including ~~the~~ a second plurality of communications ports by assigning ownership of the second plurality of communications ports to a second virtual device; and means for assigning ownership of the first virtual device and the second virtual network device to a third virtual network device.

35. (Currently Amended) The network file server as claimed in Claim 22 wherein the trunk configuration routine further sets a failsafe network device address associated with a failsafe network device to the first network address ~~associated with the first~~

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virtual device, and sets a virtual address assigned to the first virtual device to the failsafe network device address.

36. (Previously Presented) The network file server as claimed in Claim 34 wherein the means for setting a trunk network address further sets a failsafe network device address to the trunk network address, and sets a virtual network address assigned to the virtual network device to the failsafe network device address.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BW

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August 21, 2006



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